

SONY

Compact-sized, Electronic Part Mounter

SI-F130A

Compact-sized, Fine-pitch Electronic Part Mounter

SI-F209



**“Smaller and Faster Technology
Build for Precision”**

CELLULAR MOUNTER



Sony Manufacturing Systems Corporation

40%



Cellular Mounters Have Entered the High-Speed Realm!

40%* increase in performance to establish
more strategic production systems!

(*as compared to our prior model SI-Series)

Sony's cellular mounter series,

legendary in the leading-edge electronics part mounting field, has evolved even further.

The SI-F130AI high-speed mounter boasts a placement tact time of

0.139 seconds the SI-F209 fine-pitch mounter

features state of art precise mounting and high-speed.

Experience the high performance and efficiency that answer the needs of this era.



Compact-sized, Electronic Part Mounter

SI-F130AI



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0402

0603

1005

1608

2412

0402 support ... Fulfill your Future Standards

Sany's cellular routers – leaders in routing management and having an excellent next-generation strategy – make 0402 chip mounting possible.



SI-F130AI

Planet head realizes 25,000 CPH

Equipped with a "Planet Head", a patented rotary head incorporating a new overlap function, The SI-F130AI achieves even higher mounting speed.

As the head rotates freely in two directions, the sequences for part pickup and mounting can be set automatically and optimally, minimizing effective tact time.

Additionally, the use of fully closed servo control assures the highest level of precision.

New mechanism that drastically extends the maintenance intervals

SI-F130AI adopts a new mechanism using a ball's rolling motion for the nozzle shaft and the valve to dramatically extend the maintenance intervals (about three times longer than the conventional SI-F130 head). High rigidity is also achieved by this new mechanism.

In addition, the newly optimized sequence guarantees a high level of accuracy.

Significant improvement of the mounting accuracy.

Drastic extension of the maintenance intervals.

The astonishing high speed and the high mounting accuracy revolutionize what's expected from a compact mounter.

SI-F130AI

Placement tact time of 0.139 sec

The SI-F130AI is a compact-sized high-speed mounter. By achieving a placement tact time of 0.139 seconds and eliminating the cycle loss time when changing PWBs, production performance has been improved by 40% (as compared to our model SI-E series). Functions contained within the compact body of this machine is superior to those other large-size machines.

Automated pickup position correction

The part pickup position is corrected automatically to achieve a higher pickup rate.

Flying vision

The part recognition camera is mounted on the head to monitor and to eliminate any decrease in mounting precision due to temperature fluctuation.

Part thickness recognition camera

Part thickness recognition is also implemented with a CCD camera so that ultra small chip components, which tend to be picked up in a standing position, are detected.

SI-F209

Nonstop operation

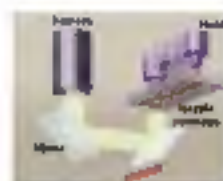
The SI-F209 is a compact-sized line-pitch component mounter suited for high precision mounting. By leveraging its placement tact time of 0.49 seconds, this machine can be used for nonstop operation in order to boost production performance. The flying vision and flying nozzle change functions developed for this purpose maximally reduce the actual tact time loss during part pickup and mounting.

Flying vision

Part recognition is performed as the head moves after part pickup. It is unnecessary to waste time by moving the head to the position of the part recognition camera.

Flying nozzle change

The nozzle is changed automatically as the head moves after part pickup. It is not necessary to manually move the head to the position of the nozzle changer. Saves more time.



Flying Vision

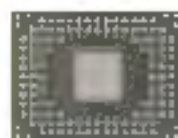
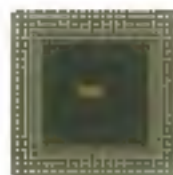


Flying Nozzle Change

SI-F130AI SI-F209

High mounting precision

The SI-F130AI and SI-F209 use CCD cameras for all part recognition cameras. The use of a proprietary image processing algorithm makes it possible to mount the latest electronic parts with ease. Part recognition, image processing and high density mounting technology enable these products to meet the requirements for high density PWBs.

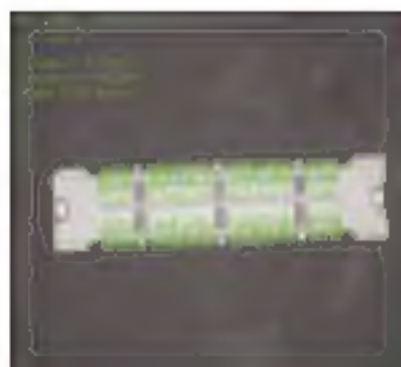




OWNERSHIP

Creation of a Responsive System

The production shop floor demands flexibility. The Cellular Mounter provides what it requires: to configure each line for your specific needs.



Automatic generation of recognized objects

A newly developed image processing system is installed to provide an extremely sophisticated shape recognition function that can rapidly generate image data for complex new parts.

Flexibility that provides the capability to handle both small-sized and large irregular-sized parts, and enables the production line to be configured as needed.

Excellent production performance and economic efficiency.

The need for flexible line configuration capability is enhanced to handle ultra small parts, to mount with high precision parts having irregular shapes, and to support your strategic production plans.

The cellular mounter is a leader in providing both high functionality and a high cost-performance ratio.

Flexible and adaptable line configuration enables more efficient use of space

The cellular mounter dramatically reduced installation floor space. When a production model is changed and production capacity is decreased, the number of cellular mounters may be reduced quickly. Unused machines can be relocated to other production lines and used efficiently to form a strategic production system.

Splicing

A splicing cassette is provided to avoid stopping of the equipment when supplying parts.

Cassette alternation

Even without a splicing cassette, the alternation function swaps cassettes that have run out of parts during operation to achieve nonstop operation.

Dual tray

The heart of the S1-F200 is equipped with a dual tray system as standard feature. In addition to providing the capability to hold multiple large trays, this configuration reduces run-time loss since if parts run out on one side, the pickup operation can continue automatically from the other side.



Realization of greater production performance in a small space

	Large feeder mounter (competitor's machine)	Cellular mounter (S1-F1800)
	<p>64,000 CPH capacity per machine</p>	<p>28,000 CPH capacity per machine</p>
Production rate (surface board size)	8,000 CPH/m ²	11,000 CPH/m ²
Part supply	Both sides	One side/both sides
Cassette capacity	20 cassettes/ 80,000 CPH	80 cassettes/ 25,000 CPH

Support tools



DAS

(Program data creation software)

Sony's proprietary DAS (Data Arrangement Software) software system is behind the efficient operation of networked cell machines. A conventional networked system (combination of modular mounters) is incapable of responding flexibly to changes in the production model or quantity because the control programs for each machine must be optimized independently. The time and labor required for this programming work increases with the number of machines. The DAS software eliminates these problems by automatically programming the optimal nozzle assignment, cassette position and mounting sequence.



Cellular program station (CPS) is a software program that creates a mounting program offline. DAS is included within CPS.

■ Specifications

	SI-F7300J
Print size	80mm × 80mm to 480mm × 380mm (on 3-edge system for length longer than 200mm) PWB thickness: 4.0mm to 2.0mm
PWB transport direction	Right to left or left to right
PWB transport time	1.0sec (normal condition)
Head configuration	2 heads (1 head)
Compatible size	D43 (200mm) up to 120mm square (Mountable on PWB) Area up to 250mm square (Fixed mounting system) (Component supply) Max. 5mm
Reconnection system condition	0.148mm (JEDEC BCP-9) (Mountable on PWB)
Placement precision ¹⁾	±0.02mm (1.2σ) (global)
Placement type	Body attachment (SI-F7300J and SI-F7300)
Carrier feeding capacity ²⁾	30 front carriers × 30 rear carriers (30 carriers total)
Displaying methods	Front Color LCD touch panel display and keypad console (Rear: Handy console)
Image processing method	Reflective image projection mapping (rear is used normally)
Component release detection	Component detection/misalignment by camera (Mountable camera only)
Operating temperature	15V to 5V (no condensation)
Additional features	Automatic narrow width adjustment function
Main system	Caterpillar table, handy console, hand console, BOP control system
Power supply consumption	AC 3-phase 200V/100, 1000VA, Approx. 2.0kW (for system B support voltage above 200V)
Air pressure consumption ³⁾	0.48MPa (6.0 bar) (0.3MPa)
External dimensions	1,320 (mm) × 1,440 (mm) × 1,340 (mm) (Machine table height 1,860mm)
Mass ⁴⁾	1,060 Kg

¹⁾ According to our regulations condition

²⁾ According to our specified components

³⁾ For reference

⁴⁾ On the main body

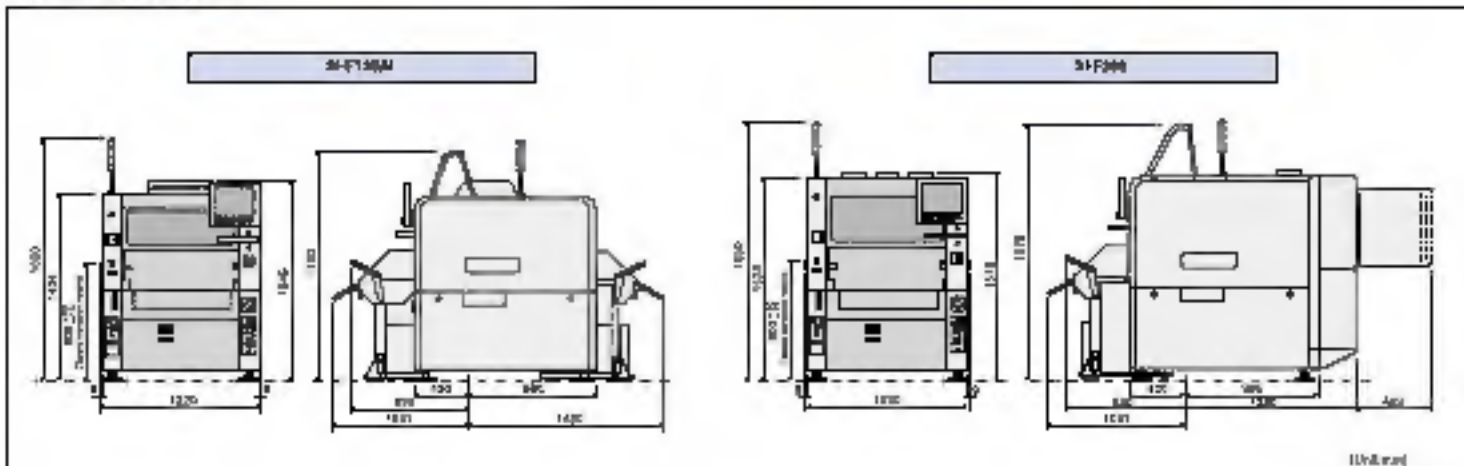
⁵⁾ Standard configuration

⁶⁾ Placement precision and accuracy may vary depending on mounting conditions

⁷⁾ Please refer to the "Specifications" for details

	SI-F2000
Print size	80mm × 80mm to 480mm × 380mm (on 3-edge system for length longer than 200mm) PWB thickness: 4.0mm to 2.0mm
PWB transport direction	Right to left or left to right
PWB transport time	1.0sec (normal condition)
Head configuration	2 heads (1 head)
Compatible size	200 (mm) up to 480 (mm) square (Mountable on PWB) 200 (mm) up to 120mm square (Mountable on PWB) 200 (mm) up to 120mm square (Fixed mounting system) 120mm square (Fixed mounting system) Up to 15mm fixed carrier (Mountable on PWB) Component supply: Max. 5mm (Mountable on PWB)
Reconnection system condition	0.148mm (JEDEC BCP-9) (Mountable on PWB)
Placement precision ¹⁾	±0.02mm (1.2σ) (global)
Placement type	Body attachment (SI-F2000 and SI-F2000J)
Carrier feeding capacity ²⁾	40 front carriers × 40 rear carriers × 2 (80 carriers × 80 rear carriers)
Operational methods	Front Color LCD touch panel display and keypad console (Rear: Handy console)
Image processing method	Reflective image projection mapping (rear is used normally)
Component release detection	Component detection/misalignment by camera (Mountable camera only)
Operating temperature	15V to 5V (no condensation)
Additional features	Automatic narrow width adjustment function
Main system	Caterpillar table, handy console, hand console, BOP control system
Power supply consumption	AC 3-phase 200V/100, 1000VA, Approx. 2.0kW (for system B support voltage above 200V)
Air pressure consumption ³⁾	0.48MPa (6.0 bar) (0.3MPa)
External dimensions	1,320 (mm) × 1,440 (mm) × 1,340 (mm) (Machine table height 1,860mm)
Mass ⁴⁾	1,060 Kg

■ External Dimensions



Safety notice: Prior to use, be absolutely certain to read and understand the Operating Instructions to ensure proper use of this product.

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